

REMARKS

Claims 1-17 continue to be the pending claims in the application. Reconsideration of the application in light of the remarks which follow is respectfully requested.

Claim Rejections - 35 U.S.C. § 103(a)

Claims 1-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ahluwalia (U.S. Patent No. 5,965,257) in view of Farrar (U.S. Patent No. 5,338,349) and Langer (U.S. Patent No. 4,600,634). The Examiner contends that Ahluwalia discloses a planar structural article which comprises an ionically charged substrate with a similarly charged coating, a filler material and a binder material. According to the Examiner, the structural material may be coated on one or both sides. The Examiner alleges that the binder comprises an acrylic latex, Hycar 2679, which is a polymer emulsion that contains surfactants. The Examiner further alleges that because a surfactant is present in Ahluwalia's composition, surfactant-generated microcells would also be present. In addition, the Examiner contends that Farrar contains a gelling agent, which the Examiner equates with a gel catalyst of the present claims. The Examiner also contends that Langer teaches a flexible fibrous endothermic sheet as well as a metallic backing, comprising an aluminum foil. The Examiner therefore concludes that the combination of Ahluwalia, Farrar, and Langer renders claims 1-17 obvious. This rejection is respectfully traversed.

The Claimed Invention

Claim 1 relates to a composite material comprising a first layer which comprises a surfactant component, surfactant-generated microcells, a gel catalyst component and a binder component and a second layer comprising a metallic component adhered to the first layer. Claim 2 covers a composite material comprising a substrate, a first layer adhered to the substrate to provide a coated substrate, and a second layer, adhered to the coated substrate wherein the first layer comprises a surfactant component, surfactant-generated microcells, a gel catalyst

component and a binder component, and wherein the second layer comprises a metallic component. Claims 3-17 are dependent on claim 2 or claims 1 or 2 or claims dependent thereon.

The Patents Cited in the Office Action

As explained in Applicants response filed on January 26, 2007, the entirety of which is incorporated herein by reference, Ahluwalia is not prior art to the instant claimed invention. During a telephone interview with the Examiner on March 22, 2007, the Applicants' undersigned representatives advised that Ahluwalia had not been regarded as prior art during the prosecution of Application Serial No. 09/663,256, which issued as U.S. Patent No. 6,500,566 on December 31, 2002, and that the declarations of the inventors which had been filed in the '256 application had been submitted at the suggestion of Examiner Bernatz. The Examiner replied during the March 22, 2007 interview that she would consider that information in her further review of the instant claims. Even if Ahluwalia is considered as prior art to the presently claimed invention, it does not render the claims unpatentable.

Ahluwalia discloses a structural article which is made by coating a substrate having an ionic charge with a coating having essentially the same ionic charge. The substrate is described as a reinforcement material (col. 2, line 12) and can be a woven or non-woven mat material. *See* Ahluwalia, col. 4, lines 38-41. In the working Examples, a fiberglass mat is used as the preferred substrate of Ahluwalia (*see* Examples I-VII). The coating consists essentially of a filler material and a binder material. *See* Ahluwalia, col. 1, line 66 to col. 2, line 3. The coating may occur on one or both sides of the substrate. Ahluwalia, col. 3, lines 43-44. The filler may include charged calcium carbonate or ceramic microspheres. Ahluwalia, col. 2, lines 23-24. The coating is prepared by using a binder material, such as acrylic latex polymer. Hycar 2679, an example of an acrylic latex polymer, is a polymer emulsion which contains soap. Ahluwalia, col. 3, lines 5-8. Ahluwalia also teaches the use of a defoaming agent. Ahluwalia, col. 2, Table I. Planar articles are preferred. Ahluwalia, col. 3, lines 42-43.

Farrar discloses a fire resistant high temperature insulating composition. Farrar's composition generally comprises a mixture of a carbonate material, an aluminosilicate substance, talc, cellulose, a binder, and a gelling agent. Farrar, col. 3, lines 43-46. Farrar teaches that the gelling agent is an agent that swells in the presence of a liquid to provide a degree of elasticity to the moist composition. (Col. 5, lines 22-33). The only example of the gelling agent given in Farrar is sodium polyacrylate (*see* Example 1 and claim 16).

Langer discloses an endothermic, non-insulating, flexible, fibrous material used for fire protection. The endothermic material is generally made by mixing together inorganic fibers, binder and inorganic endothermic filler to form a slurry, coagulating the binder, forming a floc suspension, and placing the floc suspension on a Fourdrinier wire screen to drain it which yields "a mass in which the inorganic fibers are mechanically interlocked and bound together by the polymer binder and [in which] the endothermic filler occupies the interstices between the fibers." (*See* Langer, col. 3, entire column, to col. 4, lines 1-7). Langer further discloses an alternative embodiment of its invention which involves adding a reinforcing backing material to the sheet material to give the sheet material strength. (Col. 4, lines 8-27). As one suitable reinforcing material, Langer describes aluminum foil having a thickness of about 0.08mm which is applied with a pressure sensitive adhesive on one side of the disclosed fibrous sheets of Langer. *See* Langer, col. 4, lines 8-16. As another suitable reinforcement material, Langer describes a woven or non-woven fabric scrim adhered to one side of the fibrous sheets. *See* Langer, col. 4, lines 17-27.

There is No *Prima Facie* Case of Obviousness

The combination of Ahluwalia, Farrar, and Langer does not support a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, three criteria must be met. First, there must be some suggestion or motivation in the cited references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to

combine reference teachings. Second, there must be a reasonable expectation of success. Third, the combined references must teach or suggest all the claimed limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and must not be based on the Applicants disclosure. *In re Vaeck*, 947 F2d 488, 20 USPQ 2d 1438 (Fed. Cir. 1991); MPEP § 2142.

As noted in Applicants previous Response dated August 2, 2006, which is incorporated herein by reference, combining the cited references does not result in a teaching or suggestion of all of the claimed limitations. Every element of the invention must be present in the prior art in order for an Examiner to make out a *prima facie* case of obviousness. Applicants' claimed invention includes a surfactant component as well as surfactant-generated microcells. In the Office Action, the Examiner asserts that Ahluwalia discloses a binder material which comprises an acrylic latex, specifically Hycar 2679, which the Examiner notes contains soap and which the Examiner equates with the surfactant in the present claims. The Examiner contends that because a surfactant is present in Ahluwalia's composition, then surfactant-generated microcells would also be present in the material.

Applicants first note that Ahluwalia provides no teaching whatsoever of surfactant-generated microcells. Hycar 2679 is described as a binder in Ahluwalia **and in the instant application** in paragraph 0028, not as a surfactant capable of forming microcells. Paragraph 0029 in the present specification describes characteristics of surfactants that are capable of forming microcells during the making of the first layer of the claimed composite material. There is no indication in Ahluwalia that the Hycar 2679 adhesive satisfies these criteria. Applicants further note that the claims are directed to surfactant-generated microcells, not to surfactant-generated foam in general. Microcells, by their very name, have a specific structure. As indicated in the present application at paragraph 36, the surfactant-generated microcells are preferably generated from a surfactant capable of generating microcells in a

preferred size range and that preferably form in a generally monodisperse state. In a particularly preferred embodiment, the microcells are in the 5 μ to 20 μ diameter range. There is nothing in the teaching of Ahluwalia of such a surfactant.

Applicants also note that Ahluwalia teaches the use of a defoaming agent. *See* Ahluwalia, col. 2, Table I; col. 5, lines 4-9; col. 6, lines 30-31; col. 7, lines 65-66. Applicants assert that the use of such a defoaming agent is added to avoid the production of foam, including surfactant-generated microcells. Accordingly, Ahluwalia lacks the requisite teaching of a coating comprising surfactant-generated microcells and as such actually provides a teaching away from the present invention. A prior art reference must be considered in its entirety, including portions that teach away from the claimed invention. *See* MPEP § 2141.02; *see also* *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 U.S.P.Q. 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). It is not appropriate to choose only the desired teaching and not that which teaches away. A reference is said to teach away if a skilled artisan looking to the reference would have taken a different path than the Applicants. *See* *Tec Air, Inc. v. Denso Manufacturing Michigan, Inc.*, 192 F.3d 1353, 1360, 52 U.S.P.Q.2d 1294 (Fed. Cir. 1999). Thus, one skilled in the art looking to Ahluwalia would see nothing in that patent regarding the desirability of forming microcells.

In the Office Action, the Examiner asserts that Farrar discloses a gelling agent which the Examiner notes is capable of absorbing water and expanding in size to provide a degree of elasticity to the moist composition. The Examiner contends that the gelling agent of Farrar can be equated with the gel catalyst of Applicants' claimed invention. Applicants respectfully disagree.

A skilled artisan looking to Farrar would note that Farrar's disclosed gelling agent is a polymer that forms a gel when exposed to water and that, based on Farrar's teaching, requires the addition of water and must expand, become moist, and grow in elasticity. *See* Farrar, col. 5,

lines 26-29. Indeed, the only gelling agent taught by Farrar is sodium polyacrylate. *See* Farrar, Example 1 and claim 16. Sodium polyacrylate (also known as acrylic sodium salt polymer) is the polymer that is commonly used in diapers that absorbs water and swells. The skilled artisan looking to Farrar would not find any teaching of a gel catalyst, such as the gel catalyst of Applicants' claimed invention which, as defined in the present application, catalyzes gel formation. The present application further indicates that such catalysts may promote vulcanization to provide permanent cross-linking and to thermoset the first layer which can enhance the strength of the surfactant-generated microcell structure. *See* Application, page 10.

Representative examples of Applicants' gel catalysts are described in paragraph 30 of the present application and include SSF-GEL, UP-750 and Octocure-590, 456 and 462. Applicants' gel catalyst cannot be equated with the gelling agent of Farrar, *i.e.*, sodium acrylate. The gel catalysts as defined by the present application are not polymeric agents that can be moistened to form an expanded, more elastic composition. SSF-GEL is a sodium silicofluoride dispersion which is an inorganic salt, generally used in latex foam production to cause the liquid starting material to form a solid in response to changes to pH or heat (*i.e.*, it is a pH/heat activated gel catalyst). Octocure® and UP-750 are catalysts of vulcanization and cause permanent cross-linking to occur. A skilled artisan would not find any teaching in Farrar that would lead to the inclusion of the presently claimed gel catalysts in the compositions of Ahluwalia. Farrar teaches the use of a polymer substance that is capable of absorbing liquid and lacks any teaching whatsoever of the gel catalyst of the present claims.

In addition, Applicant asserts that the skilled artisan would not be motivated to combine the teachings of Ahluwalia and Farrar because Ahluwalia teaches low viscosity coatings (*see* col. 5, lines 39-55) that are applied in relatively uniform thin coats (*see* col. 6, lines 1-5) and Farrar teaches compositions that are thick and pasty (*see* col. 6, lines 52-56 and col. 7, lines 43-44). Moreover, because Farrar indicates that the compositions become thick and pasty by the

addition of water (*see* col. 6, lines 52-56), which is absorbed by the sodium polyacrylate gelling agent, the skilled artisan would conclude that the gelling agent of Farrar is responsible for making the compositions thick and pasty. Thus, the skilled artisan looking to the teachings of Farrar (thick and pasty) and Ahluwalia (thin with low viscosity) would specifically seek to avoid the inclusion of the sodium polyacrylate gelling agent in the coatings of Ahluwalia.

The Examiner further contends that Langer provides the teaching of the metallic component of the present claims and alleges that a skilled artisan looking to Langer would be motivated to include a foil layer to the compositions of Ahluwalia. Applicants respectfully disagree. Langer generally relates to fibrous sheet materials that are made by mixing together inorganic fibers, an organic binder and an inorganic, endothermic filler and forming a sheet material therefrom. *See* Langer, col. 3 in its entirety. The sheet materials may be made stronger by including a reinforcing backing material, which may be either an aluminum foil or a fabric scrim. *See* Langer, col. 4, lines 8-27. In contrast, Ahluwalia, as noted above, generally relates to structural articles comprising a reinforcing substrate (*i.e.*, a fabric scrim) having an ionic charge, coated with a coating having the same ionic charge. The skilled artisan would not be motivated by the teachings of Langer to include an additional reinforcing backing material in Ahluwalia because the skilled artisan would conclude that Ahluwalia already includes such a backing material, *i.e.*, it already includes a fabric scrim.

Thus, Applicants assert that the skilled artisan would not be motivated to combine the teachings of Ahluwalia, Farrar and Langer. Applicants further assert that the combination of Ahluwalia, Farrar and Langer fails to teach each and every limitation of the present claims. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 1-17 under 35 U.S.C. § 103(a).

Conclusion

In view of the foregoing remarks, Applicants submit that the present invention is now in condition for allowance. Accordingly, favorable reconsideration of the application is earnestly solicited. Please send any further correspondence relating to this application to the undersigned attorney at the address below.

Applicants believe no fee is due in connection with this communication. However, should any fee be due in connection with this communication, the Commissioner is authorized to charge any such fee to Deposit Account No. 06-1205.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

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